

SUMMARY & RECOMMENDATIONS

A SURVEY OF DIGITAL PRACTICES IN IRISH ARCHAEOLOGY

INTRODUCTION

Although there have been surveys carried out in the past, more recently there has been no explicit attempt to gain a clear understanding on the use of digital practices in Irish archaeology. There are, nevertheless, increasing amounts of digital archaeological information being produced annually.

The key objectives of our survey are to determine:

- Existing approaches to sharing and re-use
- Attitudes towards the re-use and sharing of archaeological digital information
- The types of digital data being produced
- The amounts of digital data in existence
- Technology uptake in the discipline
- Current archival strategies
- Costing models for future archival strategies

We aimed to include as many people as possible. Following some consultation, we drew up an extensive list including members from all of the following sectors and bodies:

- Academic Staff and Students
- Private contractors
- Archaeology Societies
- Public Bodies, including
- Research Institutes
- Museums
- The National Road Authority
- City and County Councils
- Department of the Environment, Heritage and Local Government
- The Heritage Council

We created the survey using the survey monkey questionnaire tool, and sent a copy to 634 respondents on the 13th of June 2008. We sent a remainder on the 19th of August 2008. In total, we received 57 replies (a 9% response rate). The results were collated on the 5th of September 2008.

The questionnaire was divided into seven sections with a generalised summary presented below for each section. Full analysis and explanation of the results is provided in Section 2.

PROFILE OF SURVEY POPULATION

- 96% of respondents are currently working in Ireland.
- The largest number of respondents are engaged primarily in archaeological consultancy (48.9%) or contract field archaeology (45%).
- The lowest number of respondents (10%) work principally in the museum sector.
- The role of respondents range from students and professors (in academia) to project directors (21%) and heritage officers (5%).

ACCESS TO THE INTERNET

- 96% of organisations provide broadband access for their employees.
- 2% still rely on 56k modem or dial up.
- 88% of respondents feel that the Internet (external email, web etc.) is useful to its activities.

ACCESSING DIGITAL DATASETS CREATED BY OTHERS

- 94% of respondents indicated that their organisation obtain digital archaeological information created by others.
- 96% of respondents use digital governmental data available via the internet.
- 94% of organisations use computers to obtain archaeological information.
- 33% make use of both maps and research created by others.
- The principal reason, as identified by 47% of respondents, as to why organisations do not use more digital information is because it is not easily available.
- As expected, both cost (43%) and the lack of software or hardware (41%) were also identified as having a negative impact on the use and re-use of more digital archaeological content.
- 26% of organisations do pay to re-use other's archaeological content.
- The majority, approximately 80% indicated that every year their organisation purchase mapping from Ordnance Survey Ireland (OSi). Mostly, archaeologists purchase OSi content through a yearly subscription.

ACCESS TO ARCHAEOLOGICAL INFORMATION IN DIGITAL AND OTHER MEDIA

- 73% of responses indicated their organisation does indeed produce archaeological content for re-use by others.
- More than a quarter (26%) of respondents produce content in the form archaeological reports.
- Email, 58% of responses, is the primary method by which this information is disseminated.
- The web or online (50%) is the secondary method chosen by respondents.
- CD or DVD (44%) is chosen as the tertiary approach.
- 59% of responses indicated that, in one way or another, they are committed to open access.

DATA CREATION WITHIN YOUR ORGANISATION

- 37% of respondents create digital versions of their data.
- 59% of respondents record digitally onsite - the majority use laptop computers (60%).
- A large majority use some form of surveying equipment (54%), be it geophysical (23%), laser scanner (9%) or total station (18%).
- 100% of participants create reports, and other text-based documents, with Microsoft Word.
- The majority of respondents, 70%, make use of Microsoft's Access program to create catalogues or databases.

- 66% of respondents employ Adobe Photoshop to create or edit graphic files.
- 40% indicated that they use no standards during inventory and documentation at all.

DIGITAL DATA ARCHIVES

- When asked, do you currently archive your digital data (short and long-term)? 84.8% of those who answered the question replied yes.
- 57.1% do not include metadata creation as part of their organisation's data management strategy.
- 37%, archive between 1 - 500 GB of digital data.

ISSUES REGARDING THE CREATION OF, MAINTENANCE, AND ACCESS TO ARCHAEOLOGICAL DATA

- When asked should licensed excavators be obliged to produce and archive full digital datasets? 46% answered yes.
- Out of the 63.2% who answered the question, 83.4% agreed with the use of some sort of standardised vocabulary or thesauri.
- When asked is access to digital data important for archaeologists and the discipline, overall? 97.1% stated yes.
- 85.7% of respondents agreed that the funding body should cover the cost of creating digital archives.
- 94.1% of respondents agreed that national bodies should fund a digital archiving services.

RECOMMENDATIONS

- There several important recommendations derived from the findings of the survey report:-
- Firstly, there is a palpable need to produce some uniform means for delivering archaeological content. Currently, the most preferred way of distributing content is by CD or DVD. There may be some concerns regarding security, however, these can be addressed with the provision of thorough security policies. Furthermore, as the large majority of participants utilise broadband technology, bandwidth is no longer a predominate issue.
- Another point that reinforces the establishment of an archaeological portal or national archive is the fact that the majority of participants are committed to open access. This is a sentiment that is worth encouraging, as without open access a large majority of content will remain removed from the public domain.
- Secondly, there is an increasing proclivity towards the use of digital methods to digital cataloguing onsite. This is a trend that could only benefit the field and discipline as a whole. The possibilities of harvesting, storing and cataloguing archaeology information digitally will not only streamline the archaeologists work practice but also promote the reuse of digital archaeological data.
- Thirdly, while some archaeologists are aware of standards, the majority of those who took part in the survey have no real understanding of the importance of standards. Moreover, there are no national standards to support Irish archaeology. The debate about the use or application of standards will always rage regardless of whether the use of one standard is

preferred over another. Therefore, this is a puerile argument when discussing the creation or uptake of standards in Irish archaeology.

- There is an immediate need to develop guidelines with the aim of producing standards that support the archaeologist in cataloguing and preserving data. Both guidelines and standards should be supported by a professional body, and developed in an endogenic manner through the actual work practices of the modern, digitally-proficient archaeologist. There is no practical benefit in foisting standards onto practitioners who have an already heavy workload. Furthermore, there is a tendency for projects, not necessarily Irish projects, to indicate the adoption of a standard by applying the least possible criteria. This is not something that should be encouraged, and only serves to frustrate those wishing to further the discipline.
- While the application of standards is an important and hopefully emerging area in Irish archaeology, it is imperative to keep the archaeologists informed. Currently, there is little indication that archaeologists are aware of, never mind, implement cataloguing or data storage standards. Finally, there is need to conduct further research into costing models for a national archive.
- In light of recent events, the government will not necessarily bare the cost of a national archive, and the idea that people will pay to use such an archive is not in keeping with current Internet savvy costing models. Micro payments, as illustrated by Apple's foray into the app store, could provide some form of basis for a more elaborate costing model. Nevertheless, it is important not to proceed with some fundamental copper-fastened approach that will only inhibit use, after all the main goal of such an archive is to publish and present Irish archaeology.

SECTION 2: A SURVEY OF DIGITAL PRACTICES IN IRISH ARCHAEOLOGY

INTRODUCTION

Although there have been surveys carried out in the past, notably⁸, more recently there has been no explicit attempt to gain a clear understanding on the use of digital practices in Irish archaeology. There are, nevertheless, increasing amounts of digital archaeological information being produced annually. Archaeologists are not only taking advantage of new surveying techniques, such as LiDAR and geophysics, but also adopting fresh approaches to producing, accessing and manipulating complex datasets. It is important for the discipline that this information be archived correctly and made available so as to promote collaboration, research, knowledge sharing and help further the field as a whole.

In this paper we firstly introduce the objectives of the survey. Secondly, we discuss the approach to the survey. Thirdly, we explain the results of the survey, and present a summary of the findings. Finally we present the seminal points from three separate interviews conducted as part of the SHARE-IT project, in which we try to gauge attitudes to the development of a national archival strategy. This survey was undertaken as part of the INSTAR SHARE-IT⁹ project with precisely these goals in mind.

The key objectives of the survey are to determine:

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- Attitudes towards the re-use and sharing of archaeological digital information
- The types of digital data being produced
- The amounts of digital data in existence
- Technology uptake in the discipline
- Current archival strategies
- Costing models for future archival strategies

APPROACH

We aimed to include as many people as possible. Following some consultation, we drew up an extensive list including members from all of the following sectors and bodies:

- Academic Staff and Students
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- Public Bodies, including
- Research Institutes
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We created the survey using the survey monkey questionnaire tool, and sent a copy to 634 respondents on the 13th of June 2008. We sent a remainder on the 19th of August 2008. In total, we received 57 replies (a 9% response rate), which, although low, is suitably diverse as to broadly reflect the current landscape of Irish archaeology. It was acknowledged, during initial discussions, that not every participant identified would have access to the internet. However, we collected 634 email

addresses, and due to costs and the ease at which online tools support the creation and dissemination of surveys, and later the analysis of results, we choose to focus attention solely on an online approach. Nevertheless, it is worth noting that the fact that the survey was conducted online may have isolated certain parties and consequently contributed to a lower response rate. The questionnaire did not seek to distinguish between the individual and the organisation. The approach, rather, involved a single questionnaire targeted towards people who hold key positions, both as individual archaeologists and as archaeologists at an organisational level. The results were collected on the 5th of September 2008.

The questionnaire was divided into seven sections; each is dealt with separately below.

The first section identified the participant and the participant's organisation. Section two inquired about the access that the organisation's personnel have to the internet. The third section sought to identify how each organisation obtains archaeological information in electronic format. Section four asked for the participant's opinion on the levels of access that should be granted to archaeological information obtained by other bodies, public, private and academic. Section five required the participant to outline the software and hardware that their organisation uses to collect, catalogue and indeed create archaeological digital information. Section six inquired about archival strategies, and asked the participant to detail how their organisation archives digital versions of archaeological information. Finally, section seven asked the participant's opinion on the general issues regarding the re-use of digital archaeological information.

PROFILE OF SURVEY POPULATION

96.5% of respondents are currently active in Ireland, with the majority of responses coming from counties Dublin (28%), Galway (14%) and Cork (7%). 15% of respondents indicated that they operate nationwide while a further 3.5% of participants reside in the US. The largest number of respondents engage primarily in archaeological consultancy (48.9%) or contract field archaeology (45.20%). The lowest number of respondents (exactly 10%) work principally in the museum sector. The role of respondents in their respective organisations, be it university, museum, library or consultancy, range from students to professors and project directors (21.1%) to heritage officers (5.3%). Table 2-1 illustrates the range of activities that the respondent's organisation engages in. Each was asked to grade responses 1 - 5 in order of relevance (i.e. 1 having the highest relevance).

ORGANISATION	1	2	3	4	5
Archaeology consultancy	48.90%	8.90%	4.40%	13.30%	24.40%
Contracting field archaeology	45.20%	2.40%	9.50%	7.10%	35.70%
Local government archaeology	25.70%	25.70%	2.90%	5.70%	40%
Museum	10%	6.70%	16.70%	10%	56.70%
Library/archive	26.70%	6.70%	16.70%	10%	40%
National body	29%	6.50%	9.70%	12.90%	41.90%
University/college	38.20%	0%	2.90%	8.80%	50%

Table 2-1 Roles which organisations fulfil in Irish archaeology

ACCESS TO THE INTERNET

The second part of the questionnaire sought to identify how organisations and individuals access the internet. The internet has become a staple part of many people's work practices. Overall, all respondents who participated in the survey have access to the internet. In fact, 96.4% of organisations provide broadband-type access for their employees. Almost 2% (exactly 1.8%), however, still rely on 56k modem or dial up. Another 1.8% are unsure of the type of access they are provided through their organisation.

When asked, *does your organisation feel that the Internet (external email, web etc.) is useful to its activities?* 87.5% of respondents indicated yes with 1.8% replying no. Some respondents left additional comments indicating that the internet is a useful medium for disseminating information to the public (1.8%), for research (1.8%) and to make datasets available publicly (1.8%). Others suggest that it is impossible to be competitive without it as it has become both essential and fundamental to their work practices.

ACCESSING DIGITAL DATASETS CREATED BY OTHERS

The third part of the survey focused on the re-use of digital archaeological information. 94.1 % of respondents indicated that their organisation obtain digital archaeological information created by others. In addition, 96% of respondents use digital governmental data available via the internet, 2% don't and another 2% are unaware of whether their organisation made use of such information. While 94% of organisations use computers to obtain archaeological information, 6% of respondents didn't know how their organisation utilised such content.

Figure illustrates how organisations who participated in the survey currently use digital information created by others. 84.4% of respondents answered the question. Out of that population, 33.3% make use of both maps and research created by others, while 17.6% utilise reports and 15.6% avail of survey information (including LiDAR, aerial photographs and Geophysics).

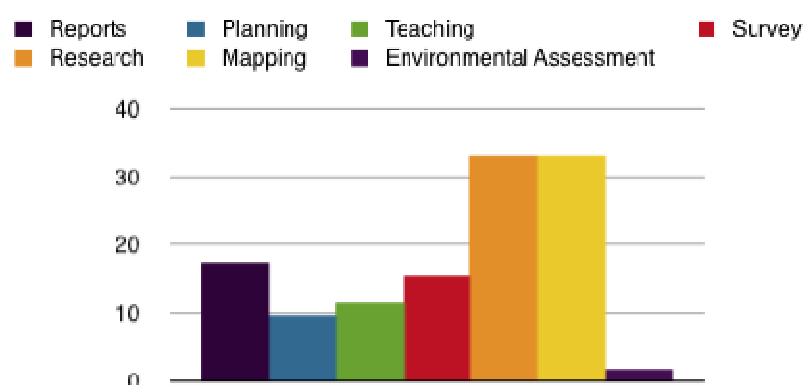


Figure 2-1 How organisations currently use digital information created by others

There was a wide range of responses to the question *how would you like to use digital data in the future?* Some answers (17.1%) indicated an increase in the use of digital information and practice in teaching and learning e.g. one respondent wished to use digital data 'in the classroom to support learning' while another suggested that 'survey skills and Introduction to GIS are areas I would specifically like to develop' for research and teaching purposes [sic] (38.6% skipped the questions).

Other respondents answered similarly, suggesting that increasing the use of digital information will help ‘to improve the information literacy of students’. Interestingly, several respondents (51.4%) highlighted the lack of available digital content as problematic and the integration between data sets and software systems as inefficient. One respondent, for instance, suggested there is a need for a ‘more seamless connections between different software systems’, while another asked ‘why reinvent the wheel?’.

Likewise, other respondents discussed the ‘current copyright climate’ as ‘very prohibitive’, proposing ‘all future projects should have scope to purchase/use digital data; spatial or otherwise’. The public circulation of content was also recognised with one respondent suggesting the use of technology ‘for dissemination to the public’. Some respondents went as far as recommending possible solutions, ‘web services providing free and dynamic link to organisation’s data sets’ [sic] or ‘the submission of reports to a central archive’.

The principal reason, as identified by 47.1% of respondents, as to why organisations do not use more digital information is because it is not easily available. As expected, both cost (43.1%) and the lack of software or hardware (41.2%) were also identified as having a negative impact on the use and re-use of more digital archaeological content (see Figure 2-2).

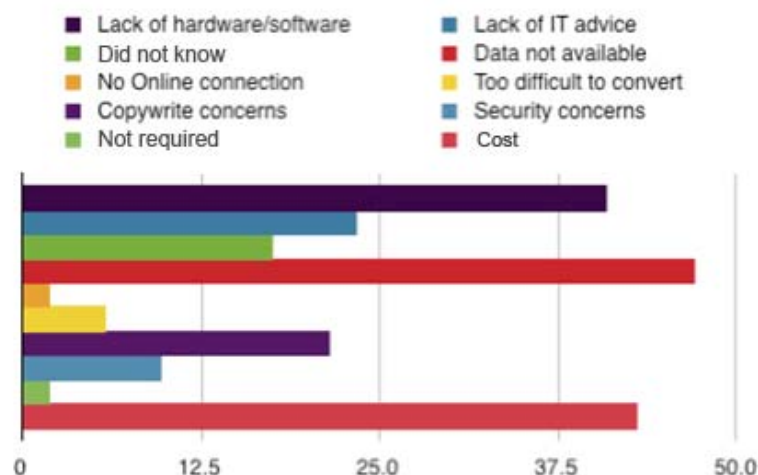


Figure 2-2 Reasons why organisations do not currently re-use archaeological information

48.1% of participants who answered the question, *Does your organisation pay to re-use others' data?* (15.7% skipped the question), indicated that their organisation does not, at present, pay to re-use other’s data. 25.9% of organisations do indeed pay to re-use other’s archaeological content, while a further 25.9% suggested that this situation may possibly occur sometime in the future. People who replied yes where asked to expand on their answer.

The majority, approximately 80% (Figure 2-), indicated that every year their organisation purchase mapping from Ordnance Survey Ireland (OSi). Some, approximately 10% of answers, indicated that their institution’s library purchase academic journals. While another 5% purchase LiDAR data and 5% didn't know. Mostly, archaeologists purchase OSi content through a yearly subscription, however, others, mainly consultants, pay for this data per project basis.

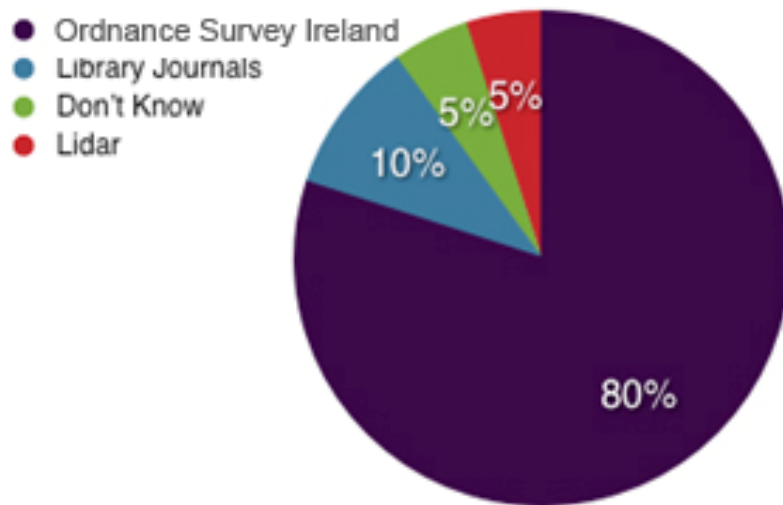


Figure 2-3 Types of data reused by archaeology organisations

The final two questions in this part of the survey sought to gauge the levels of training that organisations presently offer their staff, and the areas of interest, or types of training, that staff would actually like to see covered. The response rates to both questions were 75.4% and 57.8% respectively. The majority of responses, some 44.1%, indicated that their organisation provides training in GIS based software. While 23.2% of organisations provide training in database systems, a large percentage, 27.9%, provide no training what so ever. The majority of training takes place informally and in-house. In fact, only one respondent mentioned the ‘use of outside continued professional development (CPD) to meet Project requirements’ [sic]. Other forms of training cited include Microsoft Office (9.3%), AutoCAD (4.6%), scanning (2.3%) and geophysics software (2.3%). The large majority, 69.6%, of respondents, when answering the second question - *what training they would like to see provided in the future?* - indicated GIS. While others suggested basic IT training (2.3%) and databases (9%), one respondent felt that their organisation already has ‘training available for whatever is required’.

ACCESS TO ARCHAEOLOGICAL INFORMATION IN DIGITAL AND OTHER MEDIA

The fourth part of the survey also sought to examine the re-use and sharing of archaeological information. Here the focus of attention shifted from the organisation as consumer to the organisation as producer. The first question asked *does your organisation currently create digital data for re-use by others?* The question had a 77.1% response rate with a large majority, 73.3% of responses, indicating their organisation does indeed produce archaeological content for re-use by others. As expected, more than a quarter (25.8%) of respondents produce content in the form archaeological reports. Other responses serve to illustrate the broad activity undertaken as part of the archaeologist’s work practice. Several participants, for example, indicated that their organisations produce image files (12.9%), LiDAR data (6.45%), geophysics data (9.7%), RMP (6.45%) and catalogues and indexes (including databases) (6.45%) all for reuse by others. Two respondents mentioned that their organisation will soon release the shipwreck inventories in digital format, while another produces dendrochronological data, pollen data and archaeological archives.

Email, 58% of responses, is the primary method by which this information is disseminated. The web or online (50%) is the secondary method chosen by respondents, with mailed CD or DVD (44.4%) chosen as the tertiary approach. However, it appears that this is often predicated on the volume of information or is, possibly, a requirement of the client. The final question in this part of the survey attempted to gauge the attitudes of producers to copyright and access rights. 59.4% of responses indicated that, in one way or another, they are committed to open access. Of this group, more than one respondent (13.5%) required acknowledgement of use, while others indicated they are fully supportive of open access once the content is being used in the 'interest of science and archaeological research'. Two participants pointed out that as the work is undertaken for a client it is, in effect, the client's property. However, both mentioned that this content may be accessed with written permission as they wish to be as collaborative as possible. Other responses suggested that some organisations release certain amounts of data to the public, while due to 'legal or logistical considerations', some content remains privileged. Finally one respondent simply stated 'copyright, difficult to copy' [sic].

DATA CREATION WITHIN YOUR ORGANISATION

The fifth part of the survey attempted to gain a better understanding of the tools, processes and archival strategies typically employed by the Irish archaeologist. To this end, the section primarily focused on the use of technology in the discipline. Overall there was a below average response rate to the questions (38% - 66%). This may be because the questions specified the more practical aspects of archaeology, such as physical cataloguing or indeed survey.

The first question asked if the respondent's organisation created digital data. The answer is illustrated in Figure 2-4. While 36.8% of respondents create digital versions of their data, 7.9% create no digital data whatsoever and 44.7% re-use digital data.

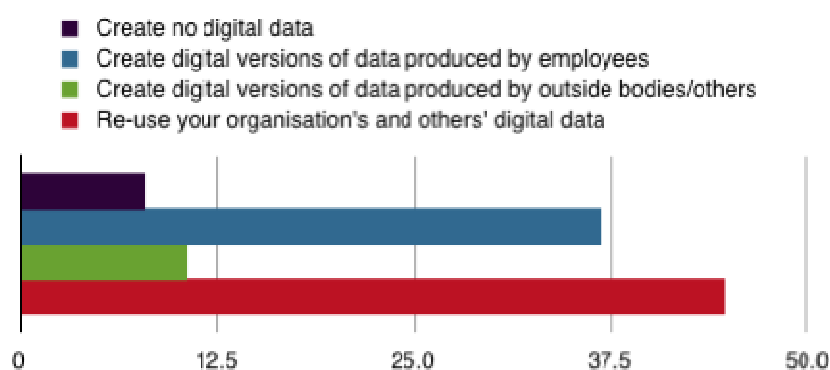


Figure 2-4 Data creation and re-use

Interestingly, 58.3% of respondents record digitally onsite (63.1% answered the question). Out of this population this majority use laptop computers (59.9%). While a further 13.6% use PDAs. Other equipment utilised during this process is GPS (31.8%) and digital camera (31.8%). One respondent indicated the use of a pen computer, while another makes use of a voice recorder. As expected, a

large majority use some form of surveying equipment (54.5%), be it geophysical (22.7%), laser scanner (9.1%) or total station (18.1%).

TEXT-BASED REPORTS

100% of participants create reports, and other text-based documents, with Microsoft's word program (56.1% answered the question). While one response mentioned the use of Adobe Photoshop, another suggested the use of Microsoft Access and a third the use of excel. Three respondents (9.5%) utilise acrobat reader to create PDF-based reports.

CATALOGUES/DATABASE

Similarly, the majority of respondents, 69.6%, make use of Microsoft's Access program to create catalogues or databases (only 57.9 of participants answered the question). While 54.5% utilise Microsoft Excel for such work, 3% use ArcGIS and a further 3% have adopted D-space.

IMAGES/GRAPHICS

65.6% of respondents employ Adobe Photoshop to create or edit graphic files (there was only a 56.1% overall response rate to this question). 50% of those who responded also utilise Adobe Illustrator, while a further 25% make use of Autocad. Interestingly, only two of the participants, who use Adobe products, have also taken up the open-source image processing application Gimp. Several other graphic applications were mentioned, AutorTrack, Rapidform, VRWorks, IrfanView and Microsoft Office Picture Manager for example, however the uptake of each was minimal (3.2%).

SURVEY/GIS

A large majority of responses, 75%, indicated the use of ARCVIEW or other ESRI related products to survey, view and process their GIS information. Others, 36%, suggested the use of AutoCAD, often in tandem with ESRI or other proprietary GIS-based software (Penmap 4.1%, Trimble Geo Office 4.1%, Topcon Tools 4.1%, Geosite 4.1%). The organisations of two respondents' have adopted MapInfo. Figure 2- illustrates the means by which organisations locate spatial data. The majority, 75.8%, use OSI 12 figure, while 54.5% make use of GPS.

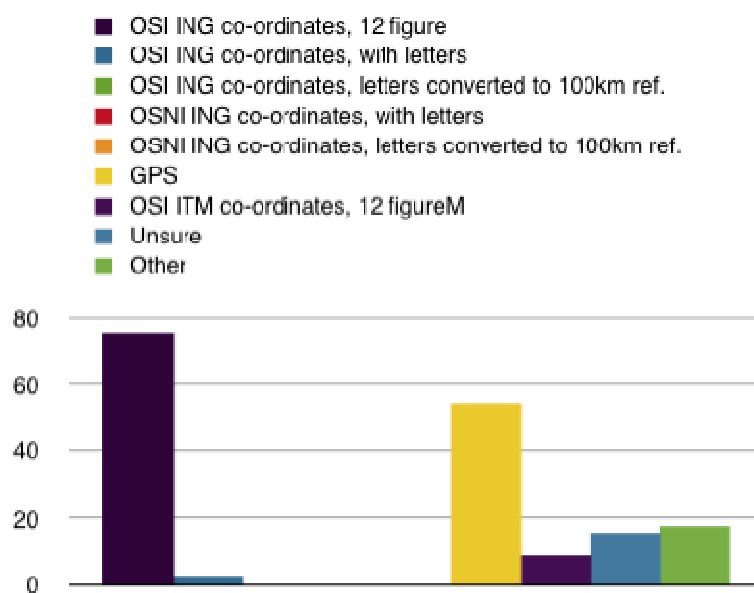


Figure 2-5 The means by which organisations locate spatial information

When asked, *please list all standards you use during inventory and documentation?*, only 38.6% answered, and of that group 40% indicated that they use no standards at all. One participant answered ‘huh?!’ [sic]. The other 60% use a variety of different approaches. One response indicated that their organisation use an ‘in house standard (informally)’ [sic]. 8% of responses suggested the use of the MIDAS data standard, another 8% use ISO metadata standards, while one participant suggested that in the future their organisation intends to review policy on metadata standards. Several other responses highlighted both English Heritage (8%) and ADS in York (4%) as providing excellent resources on the adoption of Metadata standards.

DIGITAL DATA ARCHIVES

The intention of this part of the survey was to examine current approaches to archiving data and to evaluate general opinion towards more comprehensive archival strategies. When asked, *do you currently archive your digital data (short and long-term)?* 84.8% of those who answered the question replied yes. However, it is worth noting that only 57% of participants chose to answer the question. Furthermore, when asked *have you adopted any recognised standards in the archiving of digital data?* 66.7% simply stated no with one respondent adding ‘shockingly!’ [sic]. Although three responses stated yes (9.1%), none of the respondents chose to elaborate on their answer. Another suggested that their organisation uses ‘standardised file naming’.

One respondent mentioned that their organisation is, at present, in contact with ADS to archive a database. Another suggested that their organisation is undergoing ‘ASCII based schemes based upon ADS recommendations’ [sic]. A further 57.1% do not include metadata creation as part of their organisation’s data management strategy. Of the 42.9% who do, however, one respondent frankly answered ‘you what?!’ [sic], two were unsure (14.3%), another simply stated no, and a further four respondents (28.6%) specified that they may adopt some metadata standard in the future. While one respondent specified the use of Dublin Core, another mentioned that their organisation has adopted

the inspire standard for spatial data. Finally one respondent asked ‘what is metadata?’ The final question attempted to measure the amounts of digital data being produced within Irish archaeology. As illustrated in Figure 2-6, the majority, some 37%, archive between 1 - 500 GB of digital data. Having said this, 43.9% chose not to answer the question.

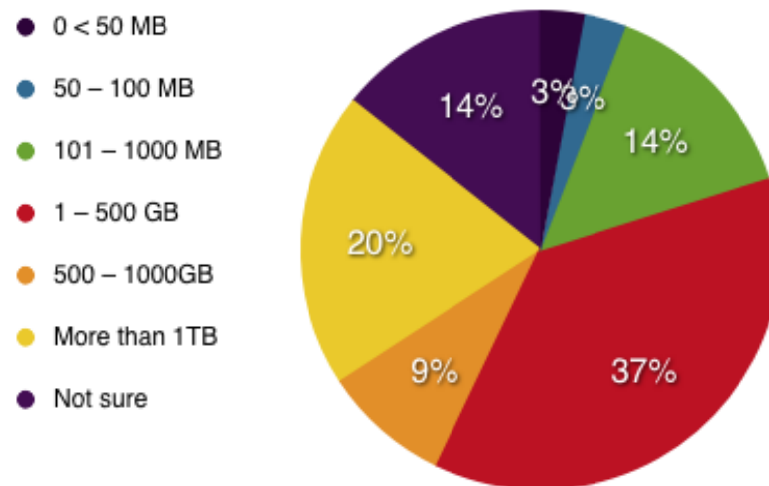


Figure 2-6 Amounts of data archived by Irish archaeology organisations

ISSUES REGARDING THE CREATION OF, MAINTENANCE, AND ACCESS TO ARCHAEOLOGICAL DATA

The final part of this survey sought the participant’s general opinion regarding how digital data is created, archived and finally accessed. The approach, therefore, was to broach the subject of archiving and access in a more qualitative fashion. Having said this, the majority of respondents chose to answer with either yes or no. The response rate varied between 56.1% to 63.2%. The participant was asked a series of questions, six in all, that covered subjects such as cost, architecture and strategy.

When asked, *should licensed excavators be obliged to produce and archive full digital datasets?* 46% answered yes. Only 3.5% disagreed with the measure (41% skipped the question). The next question tried to measure attitudes towards the use of standard, formal vocabularies, such as English Heritage thesauri. Out of the 63.2% who answered the question, an overall majority of 83.4% agreed with the use of some sort of standardised vocabulary. 11.2% were in disagreement, however, with one respondent highlighting, in pragmatic terms, the issue of flexibility when introducing a shared vocabulary. This is an important issue, and helps to explain the emergence of less-restrictive approaches to subject-based indexing, such as social-tagging¹⁰.

When asked *is access to digital data important for archaeologists and the discipline, overall?* 97.1% stated categorically yes, while the other 2.9% inquired who would gain access to this data? The next several questions focused on the cost of creating, maintaining and providing access to archaeological datasets. Firstly, 85.7% of respondents agreed that the funding body should cover the cost of creating digital archives. In addition, however, only 35.4% thought that the cost of maintaining a digital archive

should lie with the funding body. The overall majority (53%) indicated that either it is not feasible or that the cost should be borne by some government agency or central body.

Participants were then asked *should costs be passed on to those wishing to re-use data in digital archives?* The question produced a wide range of answers. While 23.5% stated yes, a further 18.8% stated no. Most respondents, however, qualified their choice of answer. Some suggested a minimal cost, dependent on whether the person accessing the data is doing so in a commercial or research capacity (17.7%). Others, 10%, raised the subject of publicly funded projects creating, maintaining and providing free access to project data. One respondent simply stated 'needs discussion'. Finally when asked, *should national bodies fund digital archiving services?* Reflecting previous answers, 94.1% responded yes.

SUMMARY

The majority of those who undertook the survey work primarily as archaeology consultants or contract field archaeologists. The majority of this population, 96.4%, are provided with broadband-type access to the internet by their organisation. 94.1 % of respondents obtain digital archaeological information created by others. However, 47.1% of respondents highlighted the lack of availability as the reason they do not make use of more digital information. 25.9% indicated that their organisation pays to reuse, mostly OSI (80%), data. 44.7% of respondents currently re-use digital data created by their own, and other organisations.

When asked about archiving, there were mixed results. While 84.8% archive their digital data in some format, 66.7% indicated that, at present, their organisation employ no recognised standards whatsoever. Nevertheless, 37% currently archive between 1 - 500 GB of digital data. Finally, 46% agreed that licensed excavators should be obliged to produce and archive full digital datasets. However, 94.1% of responses suggest that national bodies should be responsible for maintaining and providing access to digital archives.

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APPENDIX 1: SHARE-IT ONLINE QUESTIONNAIRE

INTRODUCTION

This survey is being conducted as a means to understand the varying methods Irish organisations employ when handling archaeology digital data. We hope to publish the results during the Summer, but all organisation information (name, address) will remain confidential. We hope for this research to help pave the way for a more substantial project proposal in the coming year.

This questionnaire is divided into seven sections:

Section 1. Asking you for details of the organisation.

Section 2. To tell us what access your organisation's employees have to the Internet.

Section 3. If and how your organisation obtains archaeological information in electronic form.

Section 4. Your opinions on what levels of access should be applied to others' information.

Section 5. What computers and programs you use to create your own archaeological information.

Section 6. How you archive digital versions of archaeological information.

Section 7. Your opinions on general issues regarding the re-use of digital data.

This questionnaire should take about 20 minutes of your time.

If you have any queries regarding this questionnaire, please contact Anthony Corns at email anthony@discoveryprogramme.ie or telephone 01-6393039.

This project was supported by the Heritage Council under the Irish National Strategic Archaeological Research (INSTAR) Programme 2008.

Many thanks to ADS (Archaeology Data Service) for their help with this Survey.

SECTION 1: DETAILS OF YOUR ORGANISATION'S INVOLVEMENT IN IRISH ARCHAEOLOGY

1. On behalf of which organisation (and which department/branch/section within that organisation) are you making a response?

Organisation:

Department/branch/section:

Address:

2. What is your position within the organisation?

SECTION 2: ORGANISATION'S ACCESS TO THE INTERNET

3. What access to the Internet is provided for staff?

- 56k modem/Dialup connection
- Broadband
- Don't know
- None

5. Does your organisation feel that the Internet (external email, web etc.) is useful to its activities?

- Yes
- No
- Additional comments

SECTION 3: ACCESSING DIGITAL DATASETS CREATED BY OTHERS

6. Does your organisation obtain archaeological information created by others in digital format?

- Yes
- No
- Don't Know

7. Does your organisation currently use digital governmental data available via the internet e.g. www.archaeology.ie.

- Yes
- No
- Not Aware

8. Does your organisation intend to use computers to obtain archaeological information?

- Yes
- No
- Don't know

9. For what aspects of its work does your organisation currently use digital data created by others?

10. How would you like to use digital data in your organisation, in the future?

11. What prevents your organisation from using digital data more? Please tick the most appropriate boxes

- Lack of hardware/software
- Lack of IT advice in organization
- Didn't know they were available
- Data we want isn't available
- No on-line connection
- Too difficult to convert
- Worried about copyright
- Worried about security
- Not required
- Cost

12. Does your organisation pay to re-use others' data?

- Yes
- No
- Possibly in the future?

If yes, please explain how much, when, and why

13. What training, regarding access to digital data, is provided by your organisation at present(e.g. Database, GIS, Laser scanning)?

14. If further training were available, what areas would you like to see covered?

SECTION 4: ACCESS TO ARCHAEOLOGICAL INFORMATION IN DIGITAL AND OTHER MEDIA

15. Does your organisation currently create digital data for re-use by others?

- Yes
- No (Please go to question 17)

16. What digital data does your organisation hold that are available for re-use by others?

17. How does your organisation distribute this content (e.g. via Email, through the Web, mailed CD or DVD)?

18. What is your organisation's policy regarding (outside) access to information it creates/holds?

SECTION 5: DATA CREATION WITHIN YOUR ORGANISATION

19. Do you (Please tick the appropriate boxes):

- Create no digital data
- Create digital versions of data produced by employees
- Create digital versions of data produced by outside bodies/others
- Re-use your organisation's and others' digital data

20. At what stage of an archaeology excavation are digital practices introduced?

- Pre excavation strategy
- Documentary material
- Previous excavation
- Site prospection/assignment
- Excavation
- Data collection/field
- Project administration
- Post processing

21. Which sorts of archaeological data do you create, and of these data, which are digital?

22. Do you record/catalogue digitally onsite?

- Yes
- No (Please go to question 24)

23. Please list all hardware you use during this process (e.g. PDA, laptop computer):

24. Please list all software you use during this process (e.g. Database software, spreadsheets):

25. What software do you use to create text-based reports?

26. What software do you use to create catalogues/databases?

27. What software do you use to create images/graphics?

28. What software do you use to create surveys/GIS data?

29. How do you locate spatial data?

- OSi ING co-ordinates, 12 figure
- OSi ING co-ordinates, with letters
- OSi ING co-ordinates, letters converted to 100km ref.
- GPS (WGS 84)
- OSi ITM co-ordinates, 12 figure
- Unsure
- Other please specify

30. Please list all standards you use during inventory and documentation (e.g. MIDAS data standard, other thesauri)

SECTION 6: HOLDERS OF DIGITAL DATA ARCHIVES

31. Do you currently archive your digital data (short and long-term)?

- Yes
- No

32. Have you adopted any recognised standards in the archiving of digital data?

33. Is metadata creation part of your data management strategy?

- Yes
- No

If yes please specify any metadata schema adopted (e.g. Dublin Core)

34. Approximately how much digital data do you hold? Tick one box only

- 0 < 50 MB
- 50 – 100 MB
- 101 – 1000MB
- 1 – 500 GB
- 500 – 1000GB
- More than 1TB
- Not sure

SECTION 7: OPINION ON GENERAL ISSUES REGARDING THE CREATION OF, MAINTENANCE, AND ACCESS TO DIGITAL DATA

35. Should licensed excavators be obliged to produce and archive full digital datasets?

36. Should the use of standard thesauri of archaeological terms be encouraged in the creation of information resources?

37. Is access to digital data important for archaeologists and the discipline?

38. Should the costs of creating a digital archive lie with the project funding body?

39. Should the costs of maintaining a digital archive lie with the project funding body?

40. Should costs be passed on to those wishing to re-use data in digital archives?

41. Should national bodies fund digital archiving services?

Thank You for your time.

The results from this survey will be published and sent to your organisation in the near future.

APPENDIX 2: SELECTED INTERVIEWS

The following 3 interviews were carried out over the duration of the SHARE-IT project. The interviews are not recreated verbatim, but rather are interpreted here in light of the overall goals of the project.

INTERVIEW 1: MARGARET GOWEN, MARGARET GOWEN & CO LTD & IAI

The following contains extracts from an Interview with Margaret Gowen of Margaret Gowen & Co Ltd. and the Institute of Archaeologists of Ireland (IAI). The words presented here are not verbatim, but rather consist of the salient question and answers from the interview. Anthony Corns and Robert Shaw, or the Discovery project conducted this interview under the SHARE-IT Project, funded by INSTAR. Questions 1-6 are directed at commercial archaeology and questions 7 – 11 are directed towards the IAI.

Q1. What is your experience of accessing data that is collected under a commercial contract?

A1. It is very difficult, generally speaking the surveys that we have carried out commercially is done so as a standalone effort with no reference to the surrounding data. The process involves narrowing down the area via map-based work, followed by root selection or site selection. Usually this process involves data from OSI or possibly collected during helicopter or fixed wing flights. Unless we have carried out the survey ourselves it is very difficult to get access to this data. There is the possibility to planning files, however, the data should probably be managed by the heritage body.

Q2. Do you think commercial data should be publically available?

A2. Absolutely; unreservedly, Yes. I appreciate there may be commercial sensitivity until such time as a decision to grant has been given, however after a decision to grant has been given this data should be made publicly available. I have discussed this at various forums saying when is a survey going to become part of the record, however, although people agree, they maintain that there are not the adequate resources.

Q3. Is this view widely held?

A3. I don't know exactly, there may be commercial and competition considerations.

Q4. Do you think that data should be archived and published if the commissioned under licence?

A4. Absolutely, there is no reason not to.

Q5. For the data you are collecting, do you have a long-term archival strategy?

A5. Yes.

Q6. Do you think an archival strategy is something that the company or state should pay for?

A6. If it involves major effort on behalf of the company then the company should probably be provided with some form of grant. It would be good to develop as a professional standard with a set of guidance notes to go with it.

Q7. Do you think the Department should take a leading role in designing and enforcing standards rather than the IAI?

A7. No it should be developed by the IAI, no government body looks after professional standards.

Q8. Guidelines or Standards?

A8. The submission of the material should be mandatory and the guidelines should attach to it. That is how it working with reports. People will uphold standards once publically accessible.

Q9. In a commercial project who do you think should bear the cost of archiving, the state?

A9. No it should be part of the project design.

Q10. If there was the possibility of providing access, over the web for instance, would you publish your data?

A10. Absolutely; the website could have lower res possibly, and perhaps high res could be purchased to help bear the brunt of the cost.

Q11. Who should host such a service?

A11. The department, as the IAI has not got the infrastructure, the department is the obvious place. What really is required is an enormous GIS with everything broken unto layers.

INTERVIEW 2: MUIRIS DE BUITLÉIR AND PAUL WALSH, (DOEHLG)

The following contains extracts from an Interview with Maurice De Butler and Paul Walsh of Department of Environment, Heritage & Local Government (DOEHLG). The words presented here are not verbatim, but rather consist of the salient question and answers from the interview. Anthony Corns and Robert Shaw, of the Discovery project conducted this interview under the SHARE-IT Project, funded by INSTAR.

Q1. What are your aspirations regarding and archaeology archive?

A1. What are the requirements? Does it warrant such ongoing expenditure? Across the world there are new approaches being undertaking in relation to archiving data. For example, do we hold every single piece found in the state in case somebody in the future might reuse it? If so we have to stop archaeology. There is a very fundamental principle that should be established in this context. There are huge resources going into what and who and when.

Q2. Could the cost be transferred onto commercial archaeology?

A2. Argue the fundamentals first. There is a case to be answered to what exactly are you trying to do?

Q3. If the excavation is state funded should the data not be publicly available?

A3. Say people do a plain cable survey, do they hold on to the site plan. The first inked up drawing, the second up drawing and the site plan? If that's the case then I think we've lost the run of ourselves. It can be culturally specific, if the culture in a place changes then the archiving strategy may change. You examine your resources, and say I have to fit into this amount, you choose your data and you throw the rest away. Also a lot of surveys have their own practice, using different formats and methods (16 min).

Q4. Should there be guidelines for people gathering data?

A4. Or not, the final report is what the project requires. Anything that goes before that is condensed into condensed into the final report; unless someone needs to dig and re-validate the report.

Q5. But with some geospatial information, there could be standards or approaches for maintaining or storing that data?

A5. Is it more cost effective to dump data now and buy it again in 10 years when it is needed. When you discuss spatial data you are reducing the parameters, although spatial data can be used to monitor change or erosion over time. But we don't capture digital data that way.

Q6. What would you recommend as the mechanism for increased capture or storage of archaeology data?

A6. In the current climate it is highly unlikely due to financial considerations. An Archive won't live on its own.

Q7. What if the archive is held in the department but under the requisite of the licence the archaeologist has to adhere to specific guidelines?

A7. Probably not. Currently any company that conducts surveys must be a respectable geo-physics company. We don't have the technical in-house expertise and expect that the work they are doing is competent and the results accurate.

Q8. Is the final report publicly available?

A8. Yes

Q9. So could you extrapolate that backwards in that any data collected in that survey are publicly available?

A9. The report is the report. I am not exactly sure are there protocols in place in relation to certain time periods and contractors. There is no mechanism in place for the deposition of archives with contractors or archaeologists. There are two ways to approach this: Try to enforce standards or there is the professional way, and I expect that this is the way archaeologists operate. They have their own body or professional institute, which in a way sets the professional standards with its actions, formulations and education. The archaeologist is licensed to do their job and I expect that they carry out their work professionally.

Q10. Do you think the heritage council should formulate guidelines?

A10. The IAI do this, it's what they do.

Q11. How it the department incorporating the inspire directive into their workflow?

A11. We have operated to ISO standards for wildlife, archaeology and architecture. Each individual section is incorporating the relevant GIS metadata into Arcview catalogue. This will be published on our own website and in time with the EPA. Some are comfortable that we are Inspire compliant before we need to be.

Q11. Will these data be available as web services?

A11. Yes. The wildlife data is provided as a web service. Our ESRI stuff is web service enabled. Some of the data is downloadable.

Q12. Are there any plans to enable the monuments as a web service?

A12. You can take it that we are in the process of doing that.

Q13. In the near future could we have the monuments enabled as a web service? To illustrate the possibilities of web services?

A13. In principle, we hold that data on our website is correct and up to date. If a third party takes this data and then adds value to this data, then the worry sets in that people will start using that data leading to the possibility of complaint. We support this on principle but a document would need to be submitted.

Q14. What is the copyright on the OS first edition maps?

A14. They are out copyright. They are not on the website and I would have issue with this because DISCOVERY e if you put points on the first edition they do not coincide. We are not a map provider. You should use OS.

Q15. Under the new agreement are you getting the new version?

A15. No. There is a severe overhead to even archiving the three types of GIS data due to migration and maintenance and persistence. What recommendations do you see emerging from this project?

Anthony Corns replies: The data should be formatted in a certain type and each dataset associated with the appropriate metadata. As yet, there is no cultural component to the Inspire metadata.

INTERVIEW 3: SUSAN SCHREIBMAN, DIGITAL HUMANITIES OBSERVATORY (DHO)

The following contains extract from an Interview with of Digital Humanities Observatory (DHO). The words presented here are not verbatim, but rather consist of the salient question and answers from the interview. Anthony Corns of the Discovery project conducted this interview under the SHARE-IT Project funded by INSTAR. Unlike the previous two, this interview was based mostly upon discussion rather than question and answer. Here we summaries the most pertinent points of the discussion in relation to the SHARE-IT project.

Speaker: One of the big problems is that the archives are not equipped to deal with digital content. This was such a big topic in the states because, as a librarian, you are expected to carry out your regular duties and on top of this you are supposed to look after the digital content, which is not so easy – there are formats, storage issues, staffing etc. There was a report by the NSF on Cyber Infrastructure that called for a new class of professional the data curator who could effectively deal with these sorts of issues. They would be the person who would be in charge of these issues, curate the data, migrate it, and decide when not to archive it because some things are not archived. In the states they have been going through much sole searcher, archives and archive schools because the view was that archivists are impersonal arbitrarists, but younger more avant-garde archivists maintain they do have an active role in archiving.

Q1. One of the things we are looking into is the different between guidelines and standards. From your experience what body usually enforces or suggests guidelines or standards?

A1. My experience has been with this text-encoding initiative (TEI) which was very much driven by the community, the arts, the humanities, etc. It has become the de-facto standard and in 2002 became a consortium. Because of this the funding agencies now require the adoption of TEI. There could be an opportunity to develop a community which could agree upon a set of standards, because you know that if standards are mandated it is difficult to get some level of buy in. Part of our mandate is to suggest standards but also to provide guidelines at every level of the implementation of that standard.

Q2. Have you thought of implementing the CIDOC CRM?

A2. I think I have looked at that before but we are only at early stages. The only decision that we have really made is to use fedora common, the open-source repository I mentioned earlier.

One of the most problematic things is that when working with communities and the application of metadata, is that one community will describe something differently than another, and that is their prerogative. Therefore if you use a vocabulary from one community you may unintentionally isolate the other community. The semantic web and hierarchical metadata may help to solve problems such as this.

Q3. Will you publish your data as web-services?

A3. Some projects may agree to that while others may not. This will depend on IP issues.

Q4. What is the policy of the academy when the pay for research to be carried out? Who owns the IP?

A4. I'm not sure. Again, these are all areas that are new and untested.

N.B. When discussing size and amounts of digital data.

Speaker: It's interesting when you discuss the problem of space because it reflects the more avant-garde approach to archiving and the notion of curation.

N.B. When discussing formats of digital data

Speaker: The librarian made DVDs about ten year ago, and I asked had she the re-mastered or the original? She said she was not sure, but I think that is what you really want to archive. The files that do contain the most original data but then you get into issues of size and storage.